

[0140] What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. An optical switch, comprising:
a pair of chips, each with an opposing surface; and
a pair of optical fibers, each with an opposing endface, wherein each said optical fiber is initially mounted on a respective said chip such that a portion of one of said optical fibers extends beyond said surface of its respective chip upon final assembly.
2. The optical switch of claim 1, wherein said endfaces are configured to conform to each other upon contact.
3. The optical switch of claim 2, wherein said endfaces are parallel to one another.
4. The optical switch of claim 3, wherein said endfaces are transverse to a direction of light traveling through said optical fibers.
5. The optical switch of claim 1, wherein each said optical fiber is initially mounted on a respective said chip such that a portion of both of said optical fibers extends beyond said surface of their respective chips upon final assembly.

6. The optical switch of claim 5, wherein the distance which said portions of each said optical fiber extend beyond said surfaces of each respective chip upon initial mounting is sufficient to ensure that, after polishing said endfaces and surfaces, said endfaces extend at least as far as said surfaces of said chips.

7. The optical switch of claim 1, wherein said chips are formed of silicon.

8. The optical switch of claim 1, further comprising an etch-resistant coating on said chips.

9. The optical switch of claim 8, wherein said coating is formed from silicon nitride.

10. The optical switch of claim 8, wherein said coating is formed from silicon dioxide.

11. An optical switch, comprising:

a pair of chips, each with an opposing surface; and

a pair of optical fibers, each with an opposing endface, wherein each said optical fiber is initially mounted on a respective said chip such that a portion of one of said optical fibers extends beyond said surface of its respective chip upon final assembly and wherein said endfaces contact each other and said surfaces of said chips remain spaced apart a distance upon final assembly.

12. The optical switch of claim 11, wherein said distance is between about 0.4 microns and about 3 microns.

13. A method for assembling an optical switch, comprising:
mounting a pair of optical fibers, each having an endface, on a pair of chips,
each having a surface, wherein at least one of said optical fibers is mounted to
protrude beyond said surface of its respective said chip;
polishing at least one said endface of said optical fibers and at least one said
surface of said chips; and
etching at least one said surface of said chips to ensure that upon contact of
said optical fibers said surfaces of said chips remain at a distance.

14. The method of claim 13, wherein said mounting comprises adhering
said optical fibers to said chips.

15. The method of claim 13, wherein said endfaces of said optical fibers
are transverse to a direction of light traveling through said optical fibers.

16. The method of claim 13, wherein said etching is accomplished
through the use of an etchant material which is ineffective in etching said optical
fibers.

17. The method of claim 16, wherein said etching comprises etching said chips with a potassium hydroxide material.

18. The method of claim 13, wherein both of said optical fibers are mounted to protrude beyond said surface of their respective said chips.

19. The method of claim 18, wherein said polishing comprises polishing both said endfaces of said optical fibers and both said surfaces of said chips.

20. The method of claim 13, further comprising coating said chips with a coating material prior to said polishing step.

21. The method of claim 20, wherein said coating is accomplished through chemical-vapor depositing said coating material on said chips.

22. The method of claim 20, wherein said coating is accomplished through applying said coating material on selected surfaces of said chips.

23. The method of claim 20, wherein said polishing removes said coating material from at least one said face of said chips.

24. The method of claim 20, wherein said etching leaves free-standing portions of said coating material.

25. The method of claim 24, further comprising removing said free-standing portions of said coating material.

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